

Common Airborne Instrumentation System

CAIS

Configuration ID List

A00.00-C009

13 May 1996

Rev -



CAIS Joint Program Office

Naval Air Warfare Center Aircraft Division

5.4 Test Article Preparation

Patuxent River, Maryland 20670-5304



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Department of the Navy
Naval Air Warfare Center Aircraft Division

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DTIC QUALITY INSPECTED 1

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate only, other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (07804-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (LEAVE BLANK)		2. REPORT DATE 13 MAY 1996		3. REPORT TYPE AND DATES COVERED
4. TITLE AND SUBTITLE COMMON AIRBORNE INSTRUMENTATION SYSTEM CONFIGURATION ID LIST			5. FUNDING NUMBERS	
6. AUTHOR(S) SIDNEY R. JONES, JR.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) DEPARTMENT OF THE NAVY NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD 20670-5304			8. PERFORMING ORGANIZATION REPORT NUMBER A00.00-C009	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) OFFICE OF THE SECRETARY OF DEFENSE THE PENTAGON WASHINGTON, DC 20301-8000			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The Office of the Secretary of Defense has established the CAIS Joint Program Office (JPO) as the overall controlling activity for the CAIS program. The CAIS JPO is responsible for changes and contents of this document. This document will identify the configuration ID's for all CAIS and CAIS compliant line replaceable units (LRU's). CAIS compatible LRU's will be covered only to the extent vendors have requested ID's for their CAIS compatible equipment.				
14. SUBJECT TERMS COMMON AIRBORNE INSTRUMENTATION SYSTEM (CAIS) DATA ACQUISITION UNIT (DAU) GLOBAL POSITIONING SYSTEM (GPS)			15. NUMBER OF PAGES 16	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT SAR	

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1. INTRODUCTION

1.1 Purpose

One of the features of the Common Airborne Instrumentation System (CAIS) equipment is the ability to perform a configuration match test. This allows the ground support unit to interrogate all data acquisition unit (DAU) addresses in the system to discover which DAU types have been assigned which DAU addresses. As a result, each DAU type and signal conditioning card type must have a unique identification (ID) value.

1.2 Responsibility

The Office of the Secretary of Defense has established the CAIS Joint Program Office (JPO) as the overall controlling activity for the CAIS program. The CAIS JPO is responsible for changes and contents of this document.

1.3 Scope

This document will identify the configuration ID's for all CAIS and CAIS compliant line replaceable units (LRU's). CAIS compatible LRU's will be covered only to the extent vendors have requested ID's for their CAIS compatible equipment.

1.4 Background

For the purpose of CAIS, instrumentation units can be broken into four categories. The first two are considered CAIS for DoD users, while the second two are considered non-CAIS. The CAIS program is designed to handle most customer requirements. As shown in **Table 1-1**, CAIS, which includes both core and compliant units, is the instrumentation family used to satisfy most customer requirements. Some programs may need to augment their system designs with compatible and other units. The JPO has established guidelines to incorporate existing units into the CAIS family (compliant). For a system to be called CAIS, it must be one of the units developed to CAIS specifications by the JPO or specifically certified as compliant through the JPO compliance certification process. If CAIS units provide the required capability, DoD users must use those units.

Table 1-1 HARDWARE CATEGORIES

CAIS	<i>Core</i>	One of the CAIS family of units designed to CAIS specifications and developed by the CAIS JPO.
	<i>Compliant</i>	An existing or modified commercial off-the-shelf (COTS) unit sanctioned by the CAIS JPO and for which the CAIS JPO will provide life-cycle support.
Non-CAIS	<i>Compatible</i>	Any unit designed to interface or function with CAIS components or on the CAIS bus, but not sanctioned by the CAIS JPO.
	<i>Other</i>	Any unit designed to operate within the instrumentation area, but does not directly interface to a CAIS component or the CAIS bus.

For compatible units to be moved into the compliant category, there must be value added. Value added can be in terms of (in no particular order): user base, size, cost, capability, etc. The user community, in conjunction with the CAIS JPO, determines whether there is sufficient value added in moving a particular unit into the compliant category.

1.5 Definitions

Configuration ID - An ID unique to each DAU type. When requested by the CAIS Bus Controller, each DAU shall respond with its configuration ID. The configuration ID is assigned at time of manufacture.

DAU Address - See DAU ID.

DAU ID - An ID unique to each DAU on a CAIS bus. The DAU ID is assigned at time of installation by configuring the code plug (or equivalent).

1.6 Abbreviations

AATIS	Advanced Airborne Test Instrumentation System
ADAU	Analog-Discrete Data Acquisition Unit
AVDAU	Avionics Data Acquisition Unit
CAIS	Common Airborne Instrumentation System
CAIS JPO	Common Airborne Instrumentation System Joint Program Office
CNIM	CAIS Noseboom Interface Module
COTS	Commercial Off-the-Shelf
DAU	Data Acquisition Unit
DDAS	Digital Data Acquisition System
DDAU	Discrete Data Acquisition Unit
GDAU	Global Positioning System Data Acquisition Unit
GPS	Global Positioning System
ID	Identification
LRU	Line Replaceable Unit
MDAU	Miniature Data Acquisition Unit
MMSC-800	Micro Miniature Signal Conditioner
PBC	Programmable Bus Controller
SCM	Signal Conditioning Module
WBRU	Wide Band Remote Unit

2. APPLICABLE DOCUMENTS

The following documents of the exact issue shown form a part of this document to the extent specified herein. In the event of a conflict between the documents referenced herein and the contents of this document, the contents of this document shall be considered a superseding requirement.

None.

3. CONFIGURATION ID's

3.1 ID Classes

There are two classes of ID's that will be covered in this document. The first is the DAU ID. All DAU's must have a unique ID. The second is the Sub-DAU ID. These are ID's given to cards or modules within a DAU (e.g., signal conditioning cards). These ID's must be unique only within a particular DAU ID. All ID's are assigned as 16 bit codes; however, since some units can only respond with 12 bits, an attempt will be made to maintain 12 bit resolution.

3.1.1 DAU ID's

All DAU ID's will be assigned by the CAIS JPO. An attempt will be made to block manufacturers' units together. This will aid the ground support software in partially identifying unknown DAU's.

3.1.2 Sub-DAU ID's

Since Sub-DAU ID's are unique to a given DAU, manufacturers may submit a list of Sub-DAU ID's for inclusion pending approval. Approval will be based upon the general principles presented in this document. Once incorporated, Sub-DAU ID lists will be changed with prior approval only. This is to provide a stable document on which to base ground support software. Updates to the Sub-DAU ID lists will be accepted in the same manner as new inclusions.

All Sub-DAU ID lists will be treated as individual lists. However, there are some situations where the cards/modules in one DAU may also be used in another DAU. As long as it remains viable, the lists for the two (or more) DAU's will be linked. If there is a DAU specific item in one list, a reserve tag will appear in the other. This will make the two (or more) lists appear as one. If the need for the lists to diverge ever arises, the logistics will already be in place.

3.2 ID Assignments

Table 3-1 lists the CAIS core/compliant DAU ID's and **Table 3-2** lists the CAIS compatible DAU ID's.

3.2.1 Core/Compliant DAU's

CAIS DAU's can be broken into two main categories: core/compliant and compatible. The core/compliant DAU's are the official CAIS DAU's for use by DoD.

Table 3-1 CAIS CORE/COMPLIANT DAU ID's

ID (Hex)	DAU	Model Number
0000	Reserved	---
FFFF	Reserved	---
0E8F*	ADAU ⁽¹⁾	5319000-001
F000	GDAU	5318700-001
F010	DDAU	5318600-001
F020	MDAU ^{(2),(3)}	MMSC-800-126
F030	MDAU/A ⁽²⁾	MMSC-800-147
F050	AVDAU ⁽⁴⁾	5319500-001
* Tolerance $\pm 10_{\mu}$. NOTES: (1) ADAU SCC Sub-DAU ID's defined in Table 3-3. (2) MDAU SCM Sub-DAU ID's defined in Table 3-4. (3) Not recommended for new designs. (4) Number of BIF's are determined by reading AVDAU configuration register 1.		

3.2.1.1 ADAU

The analog-discrete DAU (ADAU) accepts transducer inputs from a wide variety of sources, both analog and digital. These signals are conditioned by a series of user-selected signal conditioner cards. The SCC Sub-DAU ID's are defined in **Table 3-3**.

3.2.1.2 GDAU

The global positioning system (GPS) DAU (GDAU) acquires time, space position, and other data from a GPS receiver which has been configured with a NAVSTAR GPS Receiver Instrumentation Port.

3.2.1.3 DDAU

The discrete DAU (DDAU) obtains the status of up to 128 single-ended external discrete input sources or up to 64 differential external discrete input sources.

3.2.1.4 MDAU

The miniature DAU (MDAU) is a CAIS compliant unit. It is an Aydin Vector Micro Miniature Signal Conditioner (MMSC-800) configured with a CAIS bus interface. Functionally, it is similar to the ADAU. The MDAU is no longer a standard product; it has been replaced by the MDAU/A. The MDAU signal conditioning module (SCM) Sub-DAU ID's are defined in **Table 3-4**.

3.2.1.5 MDAU/A

The MDAU/A is the 'A' revision to the MDAU. The 'A' revision primarily upgraded the speed at which the MDAU would respond to the CAIS bus. The 'A' model is still referred to as the MDAU. The MDAU/A SCM Sub-DAU ID's are defined in **Table 3-4**.

3.2.1.6 AVDAU

The avionics DAU (AVDAU) interfaces to MIL-STD-1553, F-15 H009, and F-16 Advanced Weapons Multiplexed (WMUX) avionics busses in receive mode only.

3.2.2 Compatible DAU's

Compatible DAU's are COTS units that act as CAIS DAU's. It is from this list most compliant units will come.

Table 3-2 CAIS COMPATIBLE DAU ID's

ID (Hex)	DAU	Model Number	Manufacturer
0E0F*	AATIS ADAU ⁽¹⁾	5310000-001	SCI, Inc.
8000	WBRU ⁽²⁾	MMSC-800-148	Aydin Vector
8010	PBC	PBC-800	Aydin Vector
8020	CNIM	CNI-800	Aydin Vector
* Tolerance $\pm 10_H$.			
NOTES: (1) SCC Sub-DAU ID's defined in Table 3-3.			
(2) SCM Sub-DAU ID's defined in Table 3-4.			

3.2.2.1 AATIS ADAU

The Advanced Airborne Test Instrumentation System (AATIS) ADAU accepts transducer inputs from a wide variety of sources, both analog and digital. Due to AATIS being the precursor to CAIS, AATIS DAU's are compatible with the CAIS bus. The AATIS ADAU Sub-DAU ID's are defined in **Table 3-5**.

3.2.2.2 WBRU

The wide band remote unit (WBRU) accepts wide band (high sample rate) inputs typical of flutter analysis. The WBRU SCM Sub-DAU ID's are defined in **Table 3-6**.

3.2.2.3 PBC

The programmable bus controller (PBC) acts as a 1553 bus controller for multiple 1553 based transducers.

3.2.2.4 CNIM

The CAIS noseboom interface module (CNIM) is a DDAS module designed to allow a specific noseboom interface unit access to the CAIS bus.

3.2.3 Sub-DAU ID's

3.2.3.1 ADAU SCC Sub-DAU ID's

Table 3-3 ADAU SCC SUB-DAU ID's

ID (Hex)	SCC	Model Number
<08D0	Not Used	---
090F	CSG	5319270-001
094F	PDC	5319330-001
098F	SSDC	5319350-001
09AF	TCSC	5319390-001
09CF	ASDC	5319360-001
0A0F	SRC	5319380-001
0A4F	ETR	5319290-001
0A6F	BC	5319260-001
0A8F	FCPT	5319320-001
0AAF	EMUX	5319300-001
0B0F	Reserved (AA)	---
0B8F	ADF1	5319210-001
0BAF	ADF2	5319230-001
0BCF	ADF3	5319230-002
0C4F	PSD	5319340-001
0CEF	VRSC	5319430-001
0D4F	TES	5319400-001
0D6F	SSC	5319370-001
0D8F	ADF4	5319230-004
0DCF	DAC	5319280-001
0DEF	Reserved (ARC)	---
0E4F	1553TI	5319410-001
0E6F	Reserved (A429)	---
All ID's: Tolerance $\pm 10\mu$.		

3.2.3.2 MDAU SCM Sub-DAU ID's

Table 3-4 MDAU SCM SUB-DAU ID's

ID Range (Hex)	MDAU SCM	Model Number
0000-03F0	AM-801	18102050
0400-07F0	AM-802	18102051
0800-0BF0	AP-801	18102031
0C00-0FF0	BR-801	18002100
1000-13F0	BR-802	18002101
1400-17F0	CA-801	18001040
2000-23F0	CA-804	18001043
2400-27F0	DF-801	18102030
2C00-2FF0	DM-801	18102020
3000-33F0	DM-801A	18102022
3800-3BF0	Reserved (WBRU)	---
3C00-3FF0	LV-801	18101121
4000-43F0	Reserved (WBRU)	---
4400-47F0	SC-801	18002010
4800-4BF0	SC-802	18002011
4C00-4FF0	SC-802A	18002019
5000-53F0	SC-802B	18002020
5800-5BF0	SC-804	18002013
5C00-5FF0	SC-804V	18002018
6000-63F0	SC-805	18002014
6400-67F0	SC-806	18002015
6C00-6FF0	SC-808	18002017
7400-77F0	PSI-864 A/B	18102102/18102103
7800-7BF0	SD-801	18102040
7C00-7FF0	SD-802	18102041
8400-87F0	SD-804	18102043
8800-8BF0	SM-801	18102201
8C00-8FF0	SM-804	18102204
9000-93F0	SR-801	18102010
9400-97F0	TCR-801/802	18101101/18101104
980-09BF0	TCR-801A/802	18101122/18101104
9C00-9FF0	VC-801	18101119
A000-A3F0	TC-801	18102060
The ranges account for the dash numbers. The first ID in the range is -1, the second is -2, etc.		

3.2.3.3 AATIS ADAU SCC Sub-DAU ID's

Table 3-5 AATIS ADAU SCC SUB-DAU ID's

ID (Hex)	AATIS SCC	Model Number
<08D0	Not Used	---
08EF	CSG	5146860-001
092F	PDM	5146800-001
096F	SDC	5146940-001
09EF	SRC	5146930-001
0A2F	ETR	5146920-001
0AEF	AA	5146840-001
0B2F	ADF1	5146870-001
0B4F	ADF2	5146880-001
0B6F	ADF3	5146890-001
0C2F	PSD	5146810-001
0CCF	RTSC2	5146820-001/002
0D0F	RTSC4	5146830-001/002
0D2F	TES	5146850-001
0E2F	FCPT	5146910-001
All ID's: Tolerance $\pm 10\Omega$.		

3.2.3.4 WBRU SCM Sub-DAU ID's

Table 3-6 WBRU SCM SUB-DAU ID's

ID Range (Hex)	MDAU SCM	Model Number
0000-03F0	Reserved (MDAU)	---
0400-07F0	Reserved (MDAU)	---
0800-0BF0	AP-801	18102031
0C00-0FF0	Reserved (MDAU)	---
1000-13F0	Reserved (MDAU)	---
1400-17F0	Reserved (MDAU)	---
2000-23F0	CA-804	18001043
2400-27F0	DF-801	18102030
2C00-2FF0	DM-801	18102020
3000-33F0	DM-801A	18102022
3800-3BF0	DP-801/802	18101123/18101124
3C00-3FF0	Reserved (MDAU)	---
4000-43F0	RM-801	18101135
4400-47F0	Reserved (MDAU)	---
4800-4BF0	Reserved (MDAU)	---
4C00-4FF0	Reserved (MDAU)	---
5000-53F0	Reserved (MDAU)	---
5800-5BF0	SC-804	18002013
5C00-5FF0	SC-804V	18002018
6000-63F0	Reserved (MDAU)	---
6400-67F0	Reserved (MDAU)	---
6C00-6FF0	Reserved (MDAU)	---
7400-77F0	Reserved (MDAU)	---
7800-7BF0	SD-801	18102040
7C00-7FF0	SD-802	18102041
8400-87F0	SD-804	18102043
8800-8BF0	Reserved (MDAU)	---
8C00-8FF0	Reserved (MDAU)	---
9000-93F0	SR-801	18102010
9400-97F0	TCR-801/802	18101101/18101104
9800-9BF0	TCR-801A/802	18101122/18101104
9C00-9FF0	VC-801	18101119
A000-A3F0	Reserved (MDAU)	---
The ranges account for the dash numbers. The first ID in the range is -1, the second is -2, etc.		

APPENDIX A

DAU ID REQUEST FORM

DAU Abbreviation	Model Number
DAU Description (2-3 Sentences)	
NOTE: If DAU abbreviation is an acronym, please spell out as part of the description.	

Company**Address****City, State & Zip****Phone****Fax****Point of Contact**

Date Rcvd _____

Further Action Req'd _____

DAU ID Assigned _____

Sub DAU ID's Req'd _____

Sub DAU ID Request Attached _____

APPENDIX B

SUB-DAU ID REQUEST FORM

[illegible]

Company
Address

City, State & Zip
Phone
Fax
Point of Contact

[illegible]

Date Rcvd	_____	New / Updated Request	_____
Further Action Req'd	_____	DAU ID Request Attached	_____